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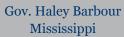
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Rep. Harry Geisinger Georgia

Gov. Jay Nixon Missouri





Rep. Chuck Martin Georgia Chair, SLC Energy &

Louisiana

Sen. Robert Adley





Rep. Jim Ellington

Mississippi



Rep. Rocky Adkins Kentucky

Vice Chairman

**Environment Committee** 

The Honorable Linda Breathitt Federal Representative SSEB Executive Director

Kenneth Nemeth Secretary

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# **OUR MISSION**

Through innovations in energy and environmental policies, programs, and technologies, the Southern States Energy Board enhances economic development and the quality of life in the South.



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# SOUTHERN STATES ENERGY BOARD STAFF

Kenneth J. N
Executive
Secretary t
Kathryn A. B
Managing
Sally L. Bem
Staff Assis
Patricia A. B
Geologist
Heather M. I
Legislative
Regulatory
Joan T. Brow
Senior Acc
Specialist

Gary P. Garrett

Analyst

Senior Technical

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nneth J. Nemeth	Monica A. Masaka
Executive Director and	Computer Support
Secretary to the Board	Specialist
thryn A. Baskin	Leigh T. Parson
Managing Director	Grants and Accounting
ly L. Bemis	Specialist
Staff Assistant	Kathy A. Sammons
ricia A. Berry	Director, Business
Geologist	Operations
ather M. Breeden	Kimberly A. Sams
Legislative and	Assistant Director,
Regulatory Counsel	Geoscience Programs
n T. Brown	Canissa N. Summerhill
Senior Accounting	<b>Program Operations</b>

Adjunct Staff
Phillip C. Badger
SSEB Technical Manager,
Bioenergy Program
Gerald R. Hill, Ph. D.
Senior Technical
Advisor
Jim Powell
Senior Policy
Advisor
Mark A. Shilling
Special Counsel

<u>Intern</u>
Bryan Grucza
Pete B. Turnham
Intern Program





Above (L to R): Governor Joe Manchin, III, West Virginia, and Governor Bob McDonnell, Virginia, at the SSEB 50th Annual Meeting Celebration.

Governor McDonnell's Special Address to the SSEB 50th Annual Meeting participants.





Right: Gov. Bob McDonnell, VA, speaks to the press as the incoming Chair of the Southern States Energy Board.



# Message from the Chairman

America is a Nation blessed with abundant natural resources, industrious people and a will to lead the world in manufacturing and industrial development, job creation, technology development and economic growth. The cornerstone of economic development in our southern region is the wise use of our energy and environmental resources to achieve our goals. An adequate supply of affordable and reliable energy is the foundation of our economic stability and enables communications, clean water resources, transportation, health care, waste management, and even national defense, just to name a few. Leading the country in the development of our indigenous energy resources such as oil, natural gas, coal and nuclear power applications, the South is uniquely prepared to manage our resource base "Into the Future," which is the theme of this 2011 Annual Report.

In the Commonwealth of Virginia, I am dedicated to making our State the "Energy Capitol of the East Coast." For this reason it is with great pride that I serve as Chairman of the Southern States Energy Board, considered to be the regional spokesman for southern states on energy issues. Achieving success in any endeavor at a time of economic crisis is more difficult and this year has been one of unprecedented hardship for many states. And so it is a true testament to initiative and hard work that I report a year of outstanding success for the Southern States Energy Board.

During this past year we have seen extraordinary and unparalleled federal environmental regulatory challenges to the development and use of coal that have amended the fabric of energy businesses and industries, causing a re-evaluation of company resources and jobs. Withdrawn permits and power plant shut downs threaten a corresponding loss of jobs and increased cost of power. Recently some of these pending regulations have been withdrawn from rulemaking for revisions. The Southern States Energy Board has served as a useful forum for developing strategies and delivering positions from our policy-makers to the Administration and Congress focused on the impact of proposed new regulations on energy security, jobs, economic development and international competitiveness.

Because the South relies on coal fired generation for over 50 percent of its electricity, the Board has maintained a carbon management program to conduct research programs that will enable the continued use of this important resource. The hallmark of this program is the Southeast Regional Carbon Sequestration Partnership (SECARB), one of seven major national efforts funded by the U.S. Department of Energy and the energy industry. The primary goal of the SECARB Partnership is to develop the necessary framework and infrastructure to conduct field tests of carbon dioxide (CO<sub>2</sub>) sequestration and storage technologies and to evaluate potential opportunities for the future commercialization of carbon sequestration. Currently in Phase III of a 10 year program, the SECARB Early Test is the first in the Nation to inject and monitor over 2.5 million tonnes of CO<sub>2</sub>. The Anthropogenic Test, conducted in concert with the Southern Company, Mitsubishi Heavy Industries and Denbury Resources, is the country's first integrated demonstration and features CO<sub>2</sub> capture, transportation by pipeline and geologic storage. This project is one of three recognized during the past year for its leadership and groundbreaking research by the international Carbon Sequestration Leadership Forum, a pact of 24 nations including the United States.

However, the southern states must have a diversified energy portfolio to fuel economic growth, preserve the environment and our quality of life and reduce our dependence on foreign sources of energy. Nuclear energy plays a vital role in this portfolio and already generates 20 percent of our electricity safely and without emitting air pollutants. The Southern States Energy Board supports the expansion of our nuclear power resources and the commercialization of advanced reactors and small modular reactors. For this reason, the Board is a participant in the Consortium for the Advanced Simulation of Light-Water Reactors (CASL), the nation's "nuclear hub" managed by the Oak Ridge National Laboratory. Participating in a leadership role in CASL's Communications Council, the Board will offer its guidance to advise the project on educating policy makers and the public on the advances made in nuclear technologies.

In 2008, Americans paid more than \$720 billion to foreign nations to obtain oil resources primarily for transportation. That figure will increase substantially in 2011 and beyond. While this export of U.S. capital is occurring, little is being done to provide relief from high prices to American consumers and businesses. There is no comprehensive program to provide incentives and mitigate risks to industries to drill, even though more than 75 percent of the Nation's oil reserves remain in the ground. Expanded development of our offshore domestic oil and gas resources is necessary to reduce our dependence on imported oil. States must be guaranteed revenue sharing with the federal government and receive primacy, if requested, for drilling in state waters. Advancements in drilling and computing technologies over the last decade mean that we are able to access reserves of domestic natural gas previously unavailable to cost-effective

development. The availability of this new resource in our shale formations means a departure from historically volatile natural gas prices to prices that are expected to be low and steady over the next decade or more. Hydraulic fracturing and horizontal drilling are keys to the development of this exceptional natural gas resource. Our states have been regulating these practices effectively, in some cases for decades, and are well equipped to make certain this important resource development activity goes forward safely and with adequate environmental protections. An additional layer of review and regulation at the federal level will only add uncertainty and expense to the permitting and development process.

Finally, the security of our aging energy infrastructure must be a priority for our Nation. Our economies and quality of life depend upon it. The incorporation of intermittent renewable resources into capacity markets and onto the grid itself also presents important challenges. In addition, upgrading and modernizing our electric transmission and distribution system can facilitate demand management, conservation and efficiency in important ways. The Southern States Energy Board, through its policy and technology focus, is uniquely positioned to help shape the future and deployment of "Smart Grid" technologies in the South.

The Southern States Energy Board enhances economic development and the quality of life in the South through energy and environmental programs, policies and technologies. I am pleased to submit this 51st Annual Report for your review.

Robert F. Madell

Robert F. McDonnell Governor, Commonwealth of Virginia Chairman, Southern States Energy Board 2010-2011

2011 SSEB Annual Report www.sseb.org

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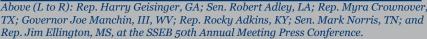
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Above: Maureen Matsen, SSEB Governor's Alternate, VA, addresses Legislators at the 2011 Briefing to Southern Legislators in Memphis, TN.









(L to R): Moderator - Rep. Rocky Adkins, KY; Panelists - Sen. Robert Adley, LA; Rep. Clay Ford, FL; and Sen. Mark Norris, TN, addressed Board members on "Energy Futures-The Legislative Perspective" at the SSEB 50th Annual Meetina.

Left: (L to R) Rep. Randy Davis, AL, and Sen. Mark Norris, TN, at the Briefing to Southern Legislators.

# **BOARD MEMBERS**

# **EXECUTIVE COMMITTEE**

Chairman: Governor Robert McDonnell, Virginia Vice Chairman: Representative Rocky Adkins, Kentucky Treasurer: Representative Myra Crownover, Texas Governor Haley Barbour, Mississippi Governor Jay Nixon, Missouri Senator Robert Adley, Louisiana Senator Thomas McLain Middleton, Maryland Representative Harry Geisinger, Georgia Representative Jim Ellington, Mississippi Representative Charles Martin, Georgia^\* Federal Representative: Ms. Linda Key Breathitt\* Secretary: Mr. Kenneth J. Nemeth, Executive Director\*

^Chair, SLC Energy & Environment Committee \*Ex-Officio, Non-Voting Executive Committee Member

#### **A**LABAMA

**Governor Robert Bentley** Senator Jimmy W. Holley Senator Cam Ward Senate Alternate Representative Randy Davis Representative Micky Hammon Governor's Alternate

#### **ARKANSAS**

Governor Mike Beebe Senator Eddie Joe Williams Representative Tiffany Rogers Mr. Marc Harrison, Governor's Alternate

### **FLORIDA**

Governor Rick Scott Senator Lizbeth Benacquisto Representative Clay Ford Governor's Alternate (Pending Appointment)

### **G**EORGIA

Governor Nathan Deal Senator David Shafer Senator Ross Tolleson, Senate Alternate Representative Harry Geisinger Representative Lynn Smith, House Alternate Ms. Jill Stuckey, Governor's Alternate

# KENTUCKY

Governor Steve Beshear Senate (Pending Appointment) Representative Rocky Adkins Dr. Leonard K. Peters, Governor's Alternate

### Louisiana

Governor Bobby Jindal Senator Robert Adley Representative Joe Harrison Representative Noble Ellington, House Alternate

Mr. William "Bill" Doré, Governor's Alternate

### MARYLAND

Governor Martin O'Malley Senator Thomas McLain (Mac) Middleton Delegate Dereck E. Davis Delegate Sally Y. Jameson House Alternate Mr. Malcolm D. Woolf, Governor's Alternate

### **MISSISSIPPI**

Governor Haley Barbour Senator Nolan Mettetal Representative Jim Ellington Mr. Patrick Sullivan, Governor's Alternate

#### **Missouri**

Governor Jay Nixon Senator Mike Kehoe Representative Jeanie Riddle Mr. Jeff Harris, Governor's Alternate

#### NORTH CAROLINA

Governor Bev Perdue Senator Robert Rucho Representative Mitch Gillespie Ms. Jennifer Bumgarner, Governor's Alternate

### **OKLAHOMA**

Governor Mary Fallin Senator David F. Myers Representative Weldon Watson Mr. C. Michael Ming, Governor's Alternate

# **PUERTO RICO**

Governor Luis G. Fortuño Mr. Jose Rafael Diaz, House Legislative Counsel Mr. Luis Bernal, Governor's Alternate

# SOUTH CAROLINA

Governor Nikki Haley **Senator Lawrence Grooms** Representative William E. "Bill" Sandifer Governor's Alternate (Pending Appointment)

### TENNESSEE

Governor Bill Haslam **Senator Mark Norris** Representative John Ragan Mr. Mark Cate, Governor's Alternate

#### **TEXAS**

Governor Rick Perry Senate (*Pending Appointment*) Representative Myra Crownover Mr. Barry Smitherman, Governor's Alternate

#### VIRGIN ISLANDS

Governor John P. deJongh Governor's Alternate (Pending Appointment)

#### **VIRGINIA**

Governor Robert F. McDonnell Senator John C. Watkins Delegate Harry R. Purkey Ms. Maureen Matsen, Governor's Alternate

# WEST VIRGINIA

Governor Earl Ray Tomblin Senator Mike Green Delegate Linda Goode Phillips Mr. John F. Herholdt, Governor's Alternate



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U.S. Senator Lindsey Graham, SC, speaks on "Nuclear Energy: Renaissance or Requiem."



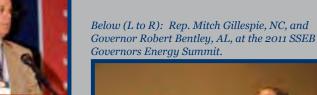
U.S. Senator Mark Warner, VA, discusses "Oil and Gas Development: The Onshore and Offshore Challenge."



U.S. Senator Joe Manchin, III, WV, leads the dialogue on "EPA Regulations and Impact on Energy and the Economy."



Above: Sen. John Watkins, VA, at the SSEB 50th Annual Meeting.



Above: Respeaks on Technology to Southern



Above: Rep. Jim Ellington, MS, speaks on "Advanced Clean Coal Technology" at the 2011 Briefing to Southern Legislators.

# **Programs**

The Southern States Energy Board operates and oversees a wide variety of energy and environment programs. Topics from water use to carbon sequestration, biomass to nuclear waste transportation, legislative and regulatory action to energy independence and security fall under the purview of SSEB.

# **GOVERNORS ENERGY SUMMIT**

On October 4, 2011, Governor Bob McDonnell, SSEB Chairman, hosted governors, members of Congress, industry leaders and SSEB members and alternates for a discussion related to vital concerns impacting America's energy resources and our troubled economy. During the Governors Energy Summit in Alexandria, Virginia, the governors, Congressmen and key energy private sector CEO's addressed three topics that are integral to making our Nation more energy and economically secure.

The first topic, oil and gas development, was introduced by Governor Robert Bentley, Alabama; U.S. Senator Mark Warner, Virginia; Mr. Terry McCallister, Chairman and CEO of Washington GAS; and Mr. Mike Ward, Executive Director of the Virginia Petroleum Council. The panel focused on offshore oil and gas reserves, lying between three and 200 miles off the coast of 20 states, awaiting drilling approvals that can provide American jobs and supply needed fuels. However, the group emphasized that the Department of the Interior has no plans to consider development of Atlantic resources before 2017. In conjunction to

this issue, governors opined that federal legislation is needed to return future federal revenues from leases off the Atlantic coast to the states and to increase the share of future offshore federal revenues to the Gulf Coast states

The second topic, Nuclear Energy: Renaissance or Requiem was introduced by Governor Haley Barbour, Mississippi. U.S. Senator Lindsey Graham, South Carolina and Mr. Stephen Kuczynski, Chairman, President and CEO of Southern Nuclear Operating Company joined Governor Barbour in addressing key barriers that the expansion of nuclear power faces such as delays in approval of advanced reactor designs by the Nuclear Regulatory Commission (NRC); a unilateral decision to end development of Yucca mountain; the pending retirement of nuclear facilities critical to meeting demand for reliable electricity; and costs for new infrastructure investment.

The final dialogue centered on the Environmental Protection Administration's (EPA) regulations and their impact on energy and the economy. Governor Bob McDonnell was joined by U.S. Senator Joe Manchin III, West Virginia; and Mr. Kevin Crutchfield, CEO, Alpha Natural

Resources, Inc. to examine the repercussions of the process, the timeline and economic implications of these actions. Panelists commented on the withdrawal of previously issued mining permits, the closing of dozens of coal fired power plants in the country and the issues of reliability and energy security.

In conclusion, all parties agreed that Governors should show the way and that building coalitions with Congress is critical to achieving consensus on energy issues of national importance. Under Governor McDonnell's leadership, SSEB continues to be the "voice on energy issues in the South."

# ENERGY AND ENVIRONMENT LEGISLATIVE PRIORITIES AND ANALYSIS

The Southern States Energy Board's Annual Legislative Digest serves as a compendium of energy and environmental legislation passed by the Board's 18 member states and territories. For more than four decades, SSEB has published the Digest as a reference tool and guide for state legislators and their staffs. The Digest thoroughly examines and tracks legislative trends by state.

In the wake of recent proposed regulations by the U. S. Environmental Protection Agency (EPA) that could have serious, debilitating economic implications and effects on the U.S. power supply, this year many of our member states attempted to address possible federal regulations related to greenhouse gases. Twelve of our member states attempted and six adopted legislation

to limit the regulation of greenhouse gases in their state or to urge the U.S. Congress to prohibit the EPA from regulating gases or imposing other regulations that could hamper economic growth.

During the 2011 legislative sessions, the southern states passed approximately 545 energy and environmental bills. Besides addressing EPA greenhouse gas regulations, several states promoted electric and alternative fueled vehicles with four states adopting measures involving tax incentives and other incentives for the purchase and operation of electric and alternative fueled vehicles. Several states addressed important economic development goals through energy and environmental legislation. State legislation includes various incentives to support the development of renewable energy enterprises or economic zones as well as the revitalization of brownfields to encourage alternative business development and recreational activities.

# CONSORTIUM FOR ADVANCED SIMULATION OF LIGHT WATER REACTORS

The Consortium for Advanced Simulation of Light Water Reactors (CASL) is the newest project in the Board's nuclear energy portfolio. CASL is a \$122 million dollar effort sponsored by the Department of Energy (DOE) to create an energy innovation hub to foster the development of the next generation of nuclear reactors. This task is headquartered at DOE's Oak Ridge National Laboratory (ORNL).

INTO THE FUTURE

> P R O G R A M S

2011 SSEB Annual Report

Above: Compacting backfill for Unit 4 with Plant Vogtle Units 1 and 2, December 2, 2010.
SOURCE: 2010 Southern Company, Inc.

Below: Mobile transporter unit moves spent fuel dry storage cask for placement on a concrete pad. SOURCE: Nuclear Power Plant Spent Fuel Storage Systems







Lead WIPPTREX Coordinato
Pliny Auzenne (center) of the
Louisiana Governor's Office
of Homeland Security and
Emergency Preparedness
discusses exercise objectives
with DOE officials.



Firefighters respond to accident scene to offer first aid.



First responders are screened for radioactive contamination

The first task will be to develop computer models that simulate nuclear power plant operations, forming a "virtual reactor" for the predictive simulations of light water reactors. Other tasks include using computer models to reduce capital and operating costs per unit of energy, safely extending the lifetime of existing U.S. reactors and reducing nuclear waste volume generated by enabling higher fuel burn-ups.

In addition to the technical aspects of the program, the overall scope of the project includes five topical councils that integrate CASL work products and personnel with the broader scientific and engineering community. One of these areas, the Communications, Policy and Economic Development Council (CPEDC), is chaired by Ken Nemeth, Executive Director of the Southern States Energy Board. The CPEDC serves as the project lead for informing and educating stakeholders and decision-makers throughout the country regarding the achievements and opportunities created by CASL.

The inaugural meeting of the CPEDC took place in Atlanta, Georgia, on April 28th. The Council developed a list of ideas and activities to advocate the continuation and promotion of the CASL project, discussed the elements of a communications plan and arranged for a future tour at ORNL to witness the operational aspects of the CASL project. A highlight for the national program was the passage of a CASL Resolution by the Southern Legislative Conference at

their 65th Annual Meeting in Memphis on July 19th. The resolution endorsed the commitment by (DOE) to support this effort to enhance American capabilities in the nuclear arena. It was sponsored by Tennessee Senate Majority Leader Mark Norris and Representative John Ragan.

# RADIOACTIVE MATERIALS TRANSPORTATION

The Southern States Energy Board continues to provide regional representation regarding pertinent nuclear policy issues through the efforts of its Radioactive Materials Transportation Committee. Members of the Committee include gubernatoriallyappointed state emergency response planners, radiological health professionals and other state agency officials engaged in radioactive materials transportation issues. Historically, the Committee has worked closely with the U.S. Department of Energy's Office of Civilian Radioactive Waste Management (OCRWM) to address specific matters relevant to the development of a national repository.

Presently, the current administration has disbanded the responsibilities of OCRWM in favor of a Blue Ribbon Commission (BRC) on America's Nuclear Future. The BRC released an interim report in July 2011 providing recommendations for developing a safe, long-term solution to managing the Nation's used nuclear fuel and nuclear waste. The final version of the report will be issued by the end of the calendar year. Prior to release

of the final report, the BRC will hold several public meetings around the country to solicit comments on their draft report.

SSEB's Radioactive Materials Transportation Committee remains cognizant of the issues related to this program and will lend its expertise to the Commission's forum in order to develop a comprehensive approach to meeting the needs of the southern states' and the Nation on policy related to nuclear power and the transportation of spent fuel and high-level radioactive waste.

# TRANSURANIC WASTE TRANSPORTATION

SSEB's Transuranic (TRU) Waste Transportation Working Group continues to assist the Department of Energy's (DOE) national laboratories with clean-up efforts of Cold War era contaminants from the production of nuclear weapons. TRU waste mainly consists of solid items such as protective clothing and gloves, rags, lab instruments and equipment, as well as other items that have become contaminated by transuranic isotopes. The TRU Working Group's main objective is to establish and maintain policies and procedures necessary to safely transport shipments of TRU waste through the southern region enroute to the Waste Isolation Pilot Plant (WIPP) near Carlsbad, New Mexico. SSEB acts as liaison for the states to identify, prioritize and resolve regional issues related to the transportation of TRU waste. These activities are undertaken through a

cooperative agreement with DOE's Carlsbad Field Office. Total funding from the agreement in excess of \$1.8 million dollars supports emergency response preparedness activities, equipment purchases, public outreach programs, shipment tracking and other planning activities in each state. The gubernatorial appointees of the TRU Working Group represent a variety of disciplines including radiological health, emergency response and transportation planning.

isolated by the severity

of their injuries.

The Oak Ridge National Laboratory (ORNL) in Tennessee and Savannah River Site (SRS) in South Carolina continue to be the major generators of the South's TRU inventory but the region is also impacted by several small quantity sites (SQS) in the northeastern part of the country. The states of West Virginia, Maryland and Virginia, all of which will be affected by this new route, have trained their personnel along this corridor to respond to a potential accident. Most recently, a SQS shipment departed from the Bettis Atomic Power Laboratory in West Mifflin, Pennsylvania, in September 2011. The Bettis shipment traversed the aforementioned states before connecting with SSEB's primary I-20 transportation route to the WIPP site.

Since opening in 1999, the WIPP facility has processed over 9,800 shipments. SRS has made 1,250 of those shipments and is approaching 2 million miles of highway transport. ORNL has been in the shipment queue for approximately three years and has

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Left to Right: Top Row: Jared Thompson, AR James McNees, AL Alan Jacobson, MD Matt McKinley, KY

Middle Row: Ann Troxler, LA Alice Rogers, TX Mike Welling, VA Les Foldesi, VA

Bottom Row: Diana Sulas, NC Lee Cox, NC



and Storage Subcommittee of the Blue Ribbon

Commission on America's Nuclear Future.



Carbon Center, and Mr. David Freeman, Sandia Technologies, provide participants with an overview of the monitoring tools deployed at the site.

SECARB Early Test Team hosted an American Association of Petroleum Geologists field trip to the Cranfield project site on April 9-10, 2010.







opportunity to view and analyze core samples collected from a nearby well.

L to R: monitoring well and injection well located at the Phase III Detailed Area of Study in Crainfield, MS.

amassed over 100 movements representing 200,000 transport miles within the program. Other activities that took place during the year included a WIPP Transportation Exercise (WIPPTREX) in Shreveport, Louisiana. This exercise allowed the state and local emergency response agencies to demonstrate their preparedness for responding to an accident involving a WIPP shipment.

# FOREIGN RESEARCH REACTOR SPENT NUCLEAR FUEL PROGRAM

The Southern States Energy Board emerged as a partner in this program in 1994 when the U.S. Department of Energy (DOE) requested assistance in the planning efforts to transport two urgent-relief shipments of spent fuel from foreign countries to the Savannah River Site (SRS). After completion of these shipments, spent fuel under the auspices of this program would be sent to either SRS or the Idaho National Laboratory (INL) based on the fuel type. The origins of this fuel can be traced to the "Atoms for Peace" program of the 1950's during which the United States began providing foreign countries with nuclear technology to be used for peaceful research and medical uses, thereby encouraging them to refrain from the development of nuclear weapons. In order to strengthen this non-proliferation policy, the United States assisted the foreign entities in converting their reactors to use low enriched uranium and also agreed to

take back and manage the spent fuel.

To achieve the goals of this program, SSEB formed two committees: the Foreign Research Reactor Spent Nuclear Fuel Transportation Working Group and the **Cross-Country Transportation Working** Group (CCTWG). The purpose of these committees is to provide state participation in the DOE planning effort to successfully carry out a 23-year shipping campaign (1996-2019) under which the United States would accept up to 19.2 metric tons of spent nuclear fuel from research reactors all over the world. This campaign could yield approximately 150-300 shipments entering the southern region via the Joint Base Charleston-Weapons Station. Since their formation, these committees have assisted the transportation planning process by informing their state agencies and local officials about the program, coordinating with the shippers and state officials to develop a transportation plan and identifying first responder needs. Additionally, the CCTWG has the added task of providing DOE with a forum to develop a transportation plan for the safe and efficient shipment of this material from SRS to INL. SSEB membership in the CCTWG is comprised of the states of South Carolina, Georgia, Tennessee and Kentucky.

The overwhelming majority of these shipments enter the United States via the Joint Base Charleston-Weapons Station at a rate of about two per year. As we enter the fifteenth year of the campaign, 45 shipments have arrived in the United States through our region. The most recent shipment was received at SRS in September 2011.

# **SOUTHERN EMERGENCY** RESPONSE COUNCIL

The Southern Emergency Response Council (SERC) exists as a formalized mutual aid agreement among the southern region to provide emergency response assistance to one another in case of a radiological incident. Created in 1972, SERC representation is comprised of the 14 signatory states of the Southern Agreement for Mutual State Radiological Assistance including: Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, Missouri, North Carolina, Oklahoma, South Carolina, Tennessee, Texas and Virginia.

The Southern Agreement for Mutual State Radiological Assistance is implemented through the Southern Mutual Radiation Assistance Plan (SMRAP). Created as a blueprint for coordinating radiological emergency assistance capabilities among participating states in the southern region, SERC representatives review, revise and administer SMRAP on an annual basis to reflect changes in state emergency response capabilities and equipment. This document outlines the mutual aid agreement, the implementation process, emergency response contacts and available state resources.

An annual SERC meeting is held by SSEB to provide members with a forum to discuss matters related to SMRAP. The group convened last year in Portland, Oregon, to ratify SMRAP for 2010. Furthermore, SSEB operates as the regional coordinator for the testing of SMRAP activation procedures during joint power plant exercises between the states. The most recent simulation occurred on August 9, 2011, and involved the McGuire Nuclear Station in North Carolina.

The states convened most recently on August 22, 2011, in Richmond, Virginia, to update SMRAP.

# **CARBON MANAGEMENT:** THE SOUTHEAST REGIONAL **CARBON SEQUESTRATION** PARTNERSHIP (SECARB)

The Southeast Regional Carbon Sequestration Partnership (SECARB) is a program underway at the Southern States Energy Board to define the role for clean coal in a carbon constrained world and balance the environmental effects of existing and prospective power generating facilities. The SECARB program represents a 13-state region, including Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Texas and Virginia and portions of Kentucky and West Virginia. SECARB is comprised of over 100 participants representing federal and state governments, industry, academia and non-profit organizations.

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Alabama Power's Plant

Barry in Bucks, AL.



Left: The modular units for the CO2 capture facility were assembled in Tuscaloosa, AL, and barged down he Mobile River for delivery at Plant Barry in Bucks, AL.



Right: Characterization well during drilling operations, Citronelle,



visited Alabama Power's Plant Gorgas, where the University of Alabama is leading a regional site characterization project for NETL.



Right: RECS 2011 participants toured the National Carbon Capture Center in Wilsonville, Alabama, and also received a technical briefing on Mississippi Power's Kemper County Plant.

Left: Participants in the 2011 Research Experience in Carbon Sequestration.



The primary goal of the SECARB Partnership is to develop the necessary framework and infrastructure to conduct field tests of carbon dioxide (CO2) sequestration and storage technologies and to evaluate potential opportunities for the future commercialization of carbon sequestration. The SECARB partners are accomplishing this goal in three phases. During Phase I (2003-2005), SECARB completed an initial screening of potential sources and terrestrial and geologic sinks for carbon sequestration and developed action plans for small-scale field demonstrations. SECARB's Phase II Validation Program (2005-2011) implemented the Phase I action plans and conducted three small-scale field tests in four locations. As of September 30, 2010, all Phase II field tests were completed. The 10-year Phase III Development Program began in 2007 with a goal to develop an integrated CO<sub>2</sub> capture, transportation

Significant accomplishments of SECARB's Early Test include the following:

and geologic storage project utilizing post-

combustion CO<sub>2</sub> captured from a coal-

fired power generating facility. Phase III

includes two projects; the Early Test and

the Anthropogenic Test (CO2 from coal

combustion). The Phase III Early Test is

underway, and the Anthropogenic Test

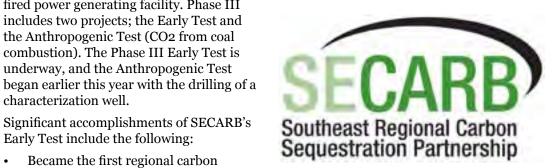
characterization well.

Became the first regional carbon sequestration project (RCSP) to begin CO2 injection;

- Became the first RCSP to monitor a 1 million tonne CO2 injection; and
- Was one of three international projects recognized by the Carbon Sequestration Leadership Forum in 2010.

SECARB continues to characterize the region's onshore and offshore geologic storage options; identify barriers and opportunities for the wide-scale construction of pipelines to transport CO<sub>2</sub> for sequestration, enhanced oil recovery and other commercial uses; monitor federal and state regulatory and legislative activities; and support education and outreach efforts related to the program.

SECARB is one of seven regional partnerships nationwide. The Partnership receives approximately 69 percent of its funding from the U.S. Department of Energy's National Energy Technology Laboratory and the other 31 percent is provided by cost share partners.



# SOUTHEAST REGIONAL CO. SEQUESTRATION TRAINING PROGRAM (SECARB-ED)

Carbon capture and storage (CCS) technologies have tremendous potential for reducing carbon dioxide (CO2) emissions and mitigating global climate change. These technologies encourage economic growth and have manageable influence on energy use. Deploying these technologies on a commercial scale will require expanding the workforce, including geologists, engineers, scientists and technicians trained in CCS specialties.

The U.S. Department of Energy's (DOE) National Energy Technology Laboratory (NETL) selected seven projects to receive more than \$8.4 million in funding to help develop regional sequestration technology training centers in the United States. The majority of this funding is being provided by the American Recovery and Reinvestment Act (ARRA) of 2009.

NETL partnered with the Southern States Energy Board and others, from both industry and academia, to develop the Southeast Regional CO2 Sequestration Training Program (SECARB-Ed) for the southern United States. This effort establishes a CCS regional training program to facilitate Southeast Regional Carbon Sequestration national and global delivery of CCS technologies. By addressing climate change and developing near-zero emission technologies that will significantly reduce CO2 emissions from industrial plants, the project advances the United States in its position as the leader in CCS technologies.

This year's accomplishments include the presentation of twelve training courses in eight different states and Washington, DC, in which 502+ participants received training and 1,061 Professional Development Hours were awarded. Course highlights include the World Bank CCS Training Session that occurred in Washington, DC, and the SECARB-Ed Flagship course in collaboration with EnTech Strategies, Research Experience in Carbon Sequestration (RECS 2011). RECS is an intensive 10-day program which is led by a world-class faculty of CCS experts from industry, the research community, nongovernment organizations and government. It combines classroom instruction with group exercises, CCS site visits and handson activities such as geologic storage site characterization, CO2 monitoring, modeling fluid flow in the subsurface, CCS deployment strategies and communications training. RECS 2011 was hosted in Birmingham, Alabama, on June 5-15, 2011, by EnTech Strategies, SECARB-Ed and Southern Company with sponsorship from the U.S. Department of Energy's, Office of Fossil

SECARB ED

**Technology Training Program** 

Energy and the National Energy Technology Laboratory.

For more information on training courses, dates and locations, see www.secarb-ed.org.

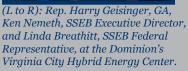
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Resources, Inc.

Right: Denbury's Green Pipeline construction. SOURCE: Denbury

Left: Dr. Peter Walsh, University of Alabama at Birmingham, leads a tour of the cap rock integrity lab and conducts an experiment to calculate the permeability of a sample. (RECS, June 2011)



State Energy Policy and Initiatives: Making It Happen at the 2011 SSEB Associate Members Meeting



Secretary Len Peters Kentucky Energy and Evnironment Cabinet



Jeff Herholdt West Virginia Division of Energy



Jill Stuckey Center of Innovation for Energy, GA Environmental Finance Authority

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# CO2 PIPELINE AND OFFSHORE STUDIES

Under the auspices of the Southeast Regional Carbon Sequestration Partnership (SECARB), SSEB and the Interstate Oil and Gas Compact Commission (IOGCC) commissioned two studies; one focused on carbon dioxide (CO2) pipelines and the other on offshore transport and geologic storage of CO2.

As commercial CO<sub>2</sub> capture and storage (CCS) projects evolve, the need for a national CO<sub>2</sub> pipeline infrastructure of sufficient scope and capacity will be needed to handle the expected volumes. In 2009, SSEB and IOGCC formed a Pipeline Transportation Task Force (PTTF) to identify barriers and opportunities for the potential wide-scale construction of pipelines to transport CO<sub>2</sub> for sequestration, enhanced oil recovery and other uses. The PTTF's research findings are summarized in A Policy, Legal, and Regulatory Evaluation of the Feasibility of a National Pipeline Infrastructure for the Transport and Storage of Carbon Dioxide which was released in January 2011. The report provides recommendations from the PTTF's evaluation of the regulatory status and current level of development of CO2 pipelines and identifies policies that would encourage national build-out of a future CO2 pipeline system in the United States.

CO2 sequestration in sub-seabed geologic structures (CS-SSGS) has yet to be performed in the United States, although

offshore sequestration has been proposed as part of the PurGen One coal gasification project led by SCS Energy in New Jersey. In 2009-2010 as part of the SECARB Program, the Geological Survey of Alabama and the Texas Bureau of Economic Geology identified the potential geologic strata suitable for storage beneath the Gulf of Mexico and estimated the storage capacity. In 2010, SSEB and IOGCC convened an Offshore Task Force of experts to build upon this assessment and explore topics that should be considered to develop and apply a robust legal and regulatory framework that will facilitate the deployment of successful CS-SSGS projects. A Preliminary Evaluation of Offshore Transport and Storage of Carbon Dioxide will be released in October 2011 and provides basic information and recommendations that will assist regulators, policy-makers, legal professionals and carbon-emitting industries in evaluating the potential for CS-SSGS projects.

# CLEAN COAL AND ADVANCED COAL TECHNOLOGY

Because coal resources have accounted for over 50 percent of the South's electricity generation for many decades, the SSEB has maintained a coal development and utilization emphasis since 1984. Increasing the use of coal and promoting innovative technologies to make coal cleaner and more efficient are the purviews of the Southern States Energy Board's Committee on Clean Coal and Energy Technologies Collaboration.

This Committee is one of the Board's most active government and industry partnerships. The membership and activities of the Committee stretch across the world and include an interface with the World Energy Council and the international Carbon Sequestration Leadership Forum. This enables the Committee to pursue domestic and international programs and projects.

The SSEB is a co-sponsor of the Eastern Coal Council annual meeting. In conjunction with that meeting on May 23-24, the Committee on Clean Coal and **Energy Technologies Collaboration held** a joint session and a two day conference, culminating with a visit to Dominion's Virginia City Hybrid Energy Center. The highlight of the joint session was an address by James F. Wood, Deputy Assistant Secretary of the U.S. Department of Energy. Presentations focused on carbon capture and storage of carbon dioxide (CO2) and greenhouse gas legislation in the states; the SSEB/IOGCC CO2 Pipeline Study; EPA rules and regulations and their impacts on jobs and the economy; the Research Experience in Carbon Sequestration education and outreach program; and progress on siting and development of new power plants including Mississippi Power's Plant Ratcliffe, CO2 capture at Alabama Power's Plant Barry, and Dominion's Virginia City Hybrid Energy Center.

During the past year the Committee's domestic agenda has focused on increasing coal production and educating policy-makers

on the many technologies available to make coal clean and efficient. This has included assistance to Pike County, Kentucky, in the preparation and implementation of a countywide energy strategy incorporating clean coal and advanced technologies. Pike County, one of the largest coal producing areas in the world, has become the first county in the Nation to develop a comprehensive energy policy to be a leader in America's energy independence. The goal is to develop the public-private partnerships necessary to create a value-added energy industry. Pikeville University currently is examining the process for establishing an Energy Research Center that will focus on technologies related not only to coal and natural gas but also to biomass/biofuels, hydroelectric power and other forms of alternative energy. SSEB is working with Pike County Judge/Executive Wayne T. Rutherford and the President of Pikeville University, former Kentucky Governor Paul Patton. During the past year, the Board also continued to work with the Kentucky Coal Academy and its President, Dr. Bill Higginbotham, in providing college-level education and training for coal miners and commercials promoting the coal industry in the Commonwealth.

Of increasing interest to SSEB's Committee on Clean Coal and Energy Technologies Collaboration is the role of state regulators in the planning, siting, permitting and development of new coal power plants in the southern region. Regulatory decisions and INTO THE FUTURE

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Right (L to R): U.S. Congressman Ed Whitfield, KY

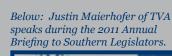
Energy" at the SSEB 50th Annual Meeting.

Left: Paul Loeffelman, American Electric Power, speaks at the 2011 Briefing to Southern Legislators.





Oak Ridge National Laboratory, U.S. DOE, gives the Luncheon Address during the SSEB 50th Annual Meeting.







Chairman/CEO, Arch Coal, Inc., addresses Board Members at the SSEB 50th Annual Meeting.

actions impact fuel choice and the design of power plants throughout the region with efforts focused on the elimination of greenhouse gases and the utilization of CO2 capture and storage technologies. In a cooperative effort with the Gasification Technologies Council, the SSEB co-sponsors two workshops each year for state regulators. seeking to provide an education-based examination of gasification technologies, their reduced greenhouse gas impacts and "carbon footprint."

The Southeastern Regional Carbon Sequestration Partnership, managed by the SSEB, is an important element of Committee interest and its activities are discussed in a previous section of this Annual Report.

The international activities of the Committee examines opportunities to export coal and clean coal technologies to developing countries in cooperation with U.S. companies interested in international business. In 2002, the SSEB and the Industrial Estate Authority of Thailand signed a Memorandum of Agreement to explore measures to improve and enhance the economic and environmental performance of Thai industrial estates. The current agreement has led to trade missions and reverse trade missions, visits to industrial estates, cooperative ventures between U.S. and Thai partners, international conferences and workshops and eco-industrial development proposals to turn waste streams into productive resources, providing solutions to environmental damage and

stimulating markets for new products. The goal is the continued involvement of southern U.S. manufacturing and service industries in finding solutions to industrial problems through international business. During this past year, the Board provided funding and an instructor for the Asian Institute of Technology's major workshop on carbon dioxide capture and sequestration in Bangkok, Thailand.

The activities of the Committee are conducted in cooperation with the U.S. Department of Energy

# BIOBASED PRODUCTS AND **BIOENERGY DEVELOPMENT**

Southern States Energy Board has a long history of analyzing and advancing the use of renewable energy in the southern states. While these resources are regional in nature, the South has numerous opportunities to advance the practical deployment of these technologies. Without a doubt, biomass is the primary renewable resource in the southern region.

SSEB is working with the Coalition of Northeast Governors (CONEG); the Midwestern Governors Association (MGA); the Western Governors' Association (WGA); and the Pacific Regional Biomass Partnership, hosted by Washington State University under the auspices of the National Biomass Partnership (NBP). The NBP is a union of the five organizations and their long-standing regional biomass energy programs representing all fifty states, Puerto Rico, the U.S. Virgin Islands and the District of Columbia. All of these organizations are recognized nationally for their combined experience related to biomass technologies and policies.

This year's focus has been to facilitate partnerships among industry, government, academia and others to advance biomass technologies in the region and nationally. SSEB has contributed in many areas, from assessing the technical viability of technologies and evaluating business plans for power plant development to bringing interested parties together to explore joint ventures. Numerous activities include technical assistance and policy guidance to our member states and others in the region. Through this guidance, the Southern States Energy Board will continue to foster the growth and implementation of a bioeconomy in the South.

### **PARTNERSHIPS**

Partnerships with government, business, industry, and academia enable the Southern States Energy Board to expand its reach and leverage opportunities to assist its member states. These collaborations allow the Board to increase its program and financial commitments to the benefit of the entire southern region. For example, SSEB's Southeast Regional Carbon Sequestration Partnership (SECARB) is a \$137 million effort with initial funding from the U.S. Department of Energy (DOE) but more

than 31 percent of current project funding is from industry partners. Another \$1 million coal and advanced power systems project is supplemented by a committee which includes state and industry officials. A radioactive materials management and transportation project is funded by DOE at more than \$2.0 million that is managed by a gubernatorially appointed committee of state officials who designate transport routes, train first responders, implement emergency response plans, operate special communications and tracking equipment, institute weather protocols for shipping and manage accident scenarios.

Founded in 1984 by SSEB's Chairman, Governor John Y. Brown of Kentucky, the Board's Associate Members represent the region's leading energy providers, resource companies, educational institutions and technology developers. They contribute invaluable expertise and advice regarding the breadth, development and direction of Board programs and projects as well as the social and economic aspects of state and federal legislation and its effects on the member states and territories. The Board works closely in partnership with its Associate Members to foster knowledge sharing, technology advancement and economic development in the South. This year the Associate Members made policy recommendations to the Board regarding U.S. Environmental Protection Agency (EPA) greenhouse gas regulations, technologies to be considered as Best Available Control

www.sseb.org

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Below (L to R): Linda Breathitt, SSEB Federal Representative and Gov. Steve Beshear, KY, take in a presentation during the SSEB 50th Annual Meeting.





Above: Sen. Robert Adley, LA, at the 2011 SSEB Briefing to Southern Legislators, giving his perspective on natural gas production.

Below: Texas Railroad Commissioner Michael Williams gives a talk on "A Future of Abundant, Affordable Clean Energy: Opening the Doors for a Diverse Energy Portfolio in Texas and the U.S." at the SSEB 50th Annual Meeting.





Right (L to R): Jennifer Bumgarner, NC Dept. of Commerce, and Rep. Chuck Martin, GA take in a presentation during the SSEB 50th Annual Meeting.

Left (L to R): Randy Eminger, ACCCE; Sen. Mark Norris, TN; and Rep. Tiffany Rogers, AR, at the 2011 Briefing to Southern Legislators.





Above: Gov. Haley Barbour, MS, delivers a Special Address to the Board Members during the SSEB 50th Annual Meeting.

Technologies (BACT) under the EPA BACT rule and nuclear plant cost reimbursement, tariff law and tax incentives.

SSEB maintains several special partnerships that advance energy resource development and regulatory issues. A long-standing partnership with the Eastern Coal Council has produced opportunities for joint meetings and sponsorship of it's Annual Meeting. Collaboration with the Gasification Technologies Council has generated annual conclaves for state economic and environmental regulators to study the advantages of emerging gasification plants throughout the country.

Through the DOE's Office of Clean Energy Collaboration and the U.S. Energy Association, the Board became a founding stakeholder in the Carbon Sequestration Leadership Forum (CSLF) (24 nations) in 2003. These policy and technical meetings further international cooperation and understanding of carbon capture and storage, legal and regulatory issues, intellectual property, carbon dioxide (CO2) for enhanced oil recovery (EOR) and longterm CO2 storage. On September 8, 2010, the CSLF recognized SSEB's SECARB Partnership as an international program of excellence (one of two projects to receive worldwide recognition).

SSEB is a founding member of the Global Carbon Capture and Storage Institute which was formed in 2009 to educate policymakers and stakeholders on CCS issues. Other intercontinental activities include cooperation with the International Energy Agency and the World Energy Council. Coordination with the National Energy Technology Laboratory and the United Arab Emirates led to a meeting to discuss the UAE's interests in using CO2 for EOR. A follow up meeting with SSEB as host is under discussion.

SSEB works closely with EPA Region 4 on various initiatives. Most recently, SSEB staff became a member of the writing team to develop the technical background document for the Southeast chapter of the next (2013) edition of the U.S. Global Change Research Program's (USGCRP) National Climate Assessment (NCA). Specifically, there will be several chapters that touch on the issues of energy production and use in the Southeast (both electricity and other energy sources such as petroleum for mobile sources), greenhouse gas emissions and sinks in the Southeast, and activities to reduce greenhouse gas emissions in the Southeast (e.g., energy efficiency, renewable energy, carbon sequestration, etc.).

To foster regional cooperation and collaboration, the Board continues a strong working relationship with the Southern Governors' Association, the Southern Legislative Conference and the Southern Growth Policies Board.

# **EDUCATING STAKEHOLDERS**

Southern States Energy Board takes seriously its mission of outreach and education through a variety of events, conferences, workshops, panel discussions, exhibits and keynote presentations. Over the past year SSEB presented at and participated in a wide range of activities ranging from community discussions of residential energy efficiency applications in DeKalb County, Georgia, to key energy conversations with the Council of State Governments and the Southern Legislative Conference. Examples of significant engagements from the past year include those listed below:

- Delta Regional Authority
   Key Role of Biomass in the Energy Future of the Southern States;
- University of Houston Energy and Environmental Law Series
   The Coal Dilemma: No Coal or Clean Coal;
- Biomass Trade and Power America Conference
   Key Role of Biomass in the South;
- Gasification Technology Council
   Congress, Administration and the States:
   Roiling Toward an Uncertain Future;
- West Virginia Carbon Capture and Storage Working Group
   CCS Technology and West Virginia Coal;
- University of the Virgin Islands

Energy Development on Island Nations Workshop;

- Georgia Environmental Conference Clean Energy Initiatives in the Southern States;
- Air and Waste Management Conference Electricity Issues in the U.S.: A SSEB Perspective; and
- Department of Energy Briefing for Secretary Chu Carbon Capture and Storage Management and SECARB.

SSEB actively works with public utility commissioners in the SSEB region, as well as nationally, through NARUC. Georgia Tech's Clean Energy Series is a monthly technical meeting of academia, engineers. entrepreneurs, public officials and during the year SSEB provided an update on carbon capture and storage and how it could impact permitting, greenhouse gas emissions reductions from power plants and regulatory decision-making in southern states. SSEB also cooperates with the utility commissioners in the Eastern Interconnection Planning Collaboration, working through a public stakeholder group to develop a robust process for studies of the electric transmission system in the East.

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the United States.

Left: Governor Earl Ray Tomblin, WV at the SSEB 50th Annaual Meeting.





Energy and John Snider, Arch Coal, Inc. facilitate dicussions during the SSEB 50th Annual Meeting.

Above (L to R): Mike McGarey, Nuclear Energy Institute; Randy Eminger, American Coalition for Clean Coal Electricity; Rep. Weldon Watson, OK; Dr. Gilbert Weigand, Oak Ridge National Laboratory; and Sherry Tucker, Denbury Resources, Inc., make comments to Board Members during the SSEB 50th Annual Meeting.

# THE BOARD THANKS ITS **ASSOCIATE MEMBERS:**

- Alpha Natural Resources
- American Coalition for Clean Coal Electricity
- American Electric Power
- America's Natural Gas Alliance
- **American Chemistry Council**
- **AGL Resources**
- Arch Coal, Incorporated
- Bell Bio-Energy, Incorporated
- **Chevron Corporation**
- Coal Utilization Research Council
- Dominion
- **Duke Energy**
- Eastern Coal Council
- **Edison Electric Institute**
- Entergy Services, Incorporated
- Kentucky Coal Academy
- Marshall Miller & Associates, Incorporated
- McGuireWoods Consulting, LLC
- National Coal Council
- **National Mining Association**
- **Nuclear Energy Institute**
- Peabody Energy
- **Progress Energy**
- Real Energy Strategies, LLC

- Santee Cooper
- **SCANA Corporation**
- Shell Oil Company
- Southern Company
- Sterling Planet, Incorporated
- TECO Services, Incorporated
- **Tennessee Valley Authority**
- WVU Research Corporation

### Sources of Support

The Southern States Energy Board's core funding comes from annual appropriations from the 18 member states and territories. Each member's share is computed by a formula written into the original Compact. This formula is comprised of three parts; one half is an equal share, one quarter is based on per capita income and one quarter is based on population. The Board has not requested an increase in annual appropriations in more than 20 years. The Compact authorizes the Board to accept funds from any state, federal agency, interstate agency, institution, person, firm or corporation provided those funds are used for the Board's purposes and functions. This year, additional support was received for research projects from grants and cooperative agreements from the U.S. Department of Energy, the U.S. Nuclear Regulatory Commission and the American Recovery & Reinvestment Act of 2009 (ARRA).

Additionally, the SSEB Carbon Management Program/Southeast Regional Carbon Sequestration Partnership's Industry Associates provide an annual monetary contribution to support the SECARB Program. Allocation of these contributions is at the discretion of the Southern States Energy Board to support the carbon management initiatives and programs. Industry Associates receive updates on current activities and progress made on SECARB projects, as well as participation in an annual stakeholder meeting held in Atlanta, Georgia. For a current list of industry associates, as well as all team members, please visit www.secarbon.org.

In addition, SSEB continues to lead an Associate Members program comprised of industry partners who provide an annual contribution to the Board. Membership includes organizations from the nongovernmental sector, corporations, trade associations and public advocacy groups. The Associate Members program provides an opportunity for public officials and industry representatives to exchange ideas, define objectives and advance energy and environmental planning to improve and enhance the South's economic and environmental well-being.

# STATE APPROPRIATION

Alabama	\$32,572
Arkansas	\$31,027
Florida	\$47,212
Georgia	\$35,782
Kentucky	\$32,197
Louisiana	\$33,817
Maryland	\$37,192
Mississippi	\$29,077
Missouri	\$36,247
North Carolina	\$37,042
Oklahoma	\$32,512
Puerto Rico	\$25,597
South Carolina	\$31,372
Tennessee	\$34,267
Texas	\$55,402
U.S. Virgin Islands	\$25,297
Virginia	\$38,362
West Virginia	\$28,732



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